## **Abstract**

Artificial turf made from fibers that include chromogens. The fibers and hence the chromogens experience stress and/or heat in response to being struck (e.g., by a golf club), and thereby provide visual feedback of the location and direction of the impact. The golf club head may be coated with a chemical or solvent that causes a chromogen to change color. The turf can be used to provide feedback about where a divot would occur if a golfer were playing on grass. In addition, it can be used to make line calls or to mark impacts in other sports such as tennis, football, cricket, and in track and field events. Also a color changing material that includes a substrate and a film disposed on a surface of the substrate, the film including a chromogen.

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